PROCEEDINGS OF TDWG

Biodiversity Information Science and Standarts 1: e20295
doi: 10.3897/tdwgproceedings.1.20295

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Conference Abstract

Traits as Essential Biodiversity Variables

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Received: 14 Aug 2017 | Published: 14 Aug 2017

Citation: Guralnick R (2017) Traits as Essential Biodiversity Variables. Proceedings of TDWG 1: e20295. https://doi.org/10.3897/tdwgproceedings.1.20295

Abstract

Essential Biodiversity Variables (EBVs) are harmonized biodiversity variables and their asssociated measurements needed for developing indicators of global biodiversity change. EBVs can serve the important purpose of aligning biodiversity monitoring efforts, much as Essential Climatic Variables (ECVs) help align allied efforts in climate science. One of six initially proposed EBV classes is devoted to species' traits, since traits form the crucial link between the evolutionary history of organisms, their assembly into communities, and the nature and dynamic functioning of ecosystems. Despite their importance, prevalence, and scientific promise, the biodiversity community is still developing the conceptual, informatics, technical, and legal frameworks required for the large scale implementation and uptake. As part of an international consortium called GLOBIS-B, and in coordination with the The Group on Earth Observations Biodiversity Observation Network (GEO BON; geobon.org), we report on recent efforts to synthesize current efforts in trait data collection and trait datasets, computational workflows, ways to standardize data and metadata, and assessments of the openness and accessibility of existing species trait datasets. Members of the GLOBIS-B (www.globis-b.eu/) consortium also produced a set of candidate EBVs within the broader trait class ('Phenology', 'Organism morphology', 'Reproduction', 'Physiology' and 'Movement'). In this presentation, we begin by introducing the concept of EBVs, the current working definition of traits in the context of the EBV process, and workflows that have been developed for other EBV classes ('Species Populations') and the importance of standardizing EBV classes and the trait class, in particular. Building on this introduction, we discuss how the EBV concept is operationalized, focusing on workflows for trait integration, and the importance of data and metadata standards,following work from

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Kissling et al. 2017 (http://onlinelibrary.wiley.com/doi/10.1111/brv.12359/full). On the legal front, we suggest that the Creative Commons (CC) framework provides effective tools for designating legally interoperable and open data, especially when trait data are in the public domain (CC0, CC PDM) or assigned with a CC BY license, and metadata citation and other forms of attribution are available in both human and machine-readable form. We also suggest how EBVs can inform policy at national and global scales. Moving forward, renewed efforts of repeated trait data collection as well as standardised protocols for data and metadata collection are needed to improve the empirical basis of species traits EBVs. Moreover, open data as well as computational workflows are required for comprehensively assessing progress towards conservation policy targets and sustainable development goals. We conclude with a call to action for the TDWG community to consider their role in further developing, implementing, and scaling biodiversity monitoring under the EBV framework.

Keywords

traits, standards, Essential Biodiversity Variables, interoperability, harmonized biodiversity data

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